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SERIES Q: SWITCHING AND SIGNALLING

Broadband ISDN – B-ISDN application protocols for the
network signalling

Soft PVC Capability

ITU-T Recommendation Q.2767.1

(Formerly CCITT Recommendation)

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Soft PVC Capability

Summary

This Recommendation utilizes the normal procedures of Broadband ISDN User Part (B-ISUP) protocol in order to support soft Permanent Virtual Connections (soft PVCs) between their endpoints. The endpoints are responsible for maintaining the end-to-end circuit by setting up a new switched connection in case the existing switched connection is released or fails. Two types of soft PVC are supported: soft Permanent Virtual Path Connection (PVPC) and soft Permanent Virtual Channel Connection (PVCC). This Recommendation contains the additional message and parameter coding, procedures, ASE descriptions and interworking mapping tables for the support of soft PVCC and soft PVPC services.

Source

ITU-T Recommendation Q.2767.1 was revised by ITU-T Study Group 11 (1997-2000) and approved under the WTSC Resolution 1 procedure on 15 June 2000.

FOREWORD

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The approval of ITU-T Recommendations is covered by the procedure laid down in WTSC Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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Soft PVC capability

1 Scope

This Recommendation contains formats and procedures for supporting soft Permanent Virtual Connections (soft PVCs). Soft PVC capability utilizes the normal procedures of B-ISUP in order to control soft permanent virtual circuit connections between their endpoints. The endpoints are responsible for maintaining the end-to-end circuit by setting up a new switched connection in case the existing switched connection is released or fails.

The endpoints of a soft PVC are located in the exchanges to which the users of the soft PVC are connected. The endpoint is identifiable by addressing information contained in the call setup signalling, such as an E.164 number plus VPCI/VCI or DLCI value.

Figure 1 identifies different reference points in a soft PVC using internal SVC connection switching and signalling.

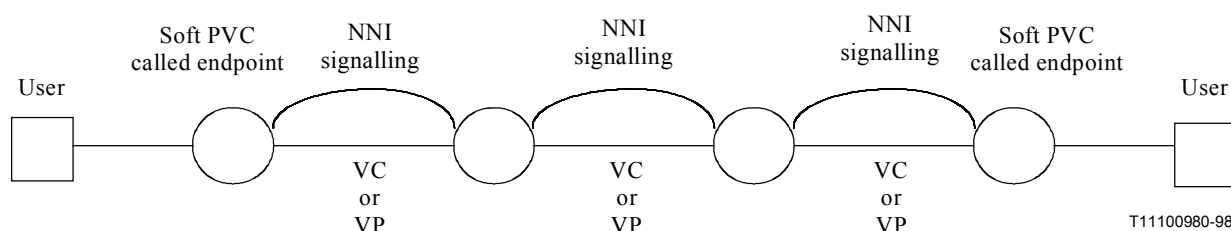


Figure 1/Q.2767.1 – Soft PVC configuration

Two types of soft PVC are supported:

- soft permanent virtual path connection (PVPC); and
- soft permanent virtual channel connection (PVCC).

This Recommendation contains the additional message and parameter coding, procedures, ASE descriptions and interworking mapping tables for the support of soft PVCC and soft PVPC services.

The procedures for control of soft PVCCs are applicable to point-to-point and point-to-multipoint procedures.

The procedures for control of soft PVPCs follow the additional procedures for switched virtual path connections in ITU-T Q.2766.1.

The frame relay endpoints can only be connected by a soft PVCC connection and not by a soft PVPC connection.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; all users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published.

- ITU-T Q.2724.1 (1996), *B-ISDN user part – Look-ahead without state change for the network node interface.*
- ITU-T Q.2726.2 (1996), *B-ISDN user part – Call priority.*
- ITU-T Q.2726.3 (1996), *B-ISDN user part – Network generated session identifier.*
- ITU-T Q.2763 (1999), *Signalling System No. 7 B-ISDN User Part (B-ISUP) – Formats and Codes.*
- ITU-T Q.2764 (1999), *Signalling System No. 7 B-ISDN User Part (B-ISUP) – Basic call procedures.*
- ITU-T Q.2766.1 (1998), *Switched virtual path capability.*
- ITU-T Q.2931 (1995), *Digital subscriber Signalling System No. 2 – User-Network Interface (UNI) layer 3 specification for basic call/connection control.*
- ITU-T X.76 (2000), *Network-to-network interface between public networks providing PVC and/or SVC frame relay data transmission service.*

3 Definitions

This Recommendation defines the following terms:

3.1 soft PVC called endpoint: Information sent in the forward (or backward) direction indicating the VPCI or VPCI/VCI values in the case of an ATM user or DLCI value in the case of a Frame Relay user, to be used (or used) for the connection segment between the soft PVC called endpoint and a user.

3.2 soft PVC calling endpoint: Information sent in the forward direction indicating the VPCI or VPCI/VCI values in the case of an ATM user or DLCI value in the case of a Frame Relay user, used for the connection segment between the soft PVC calling endpoint and a user.

4 Abbreviations

This Recommendation uses the following abbreviations:

DLCI	Data Link Connection Identifier
NNI	Network-Node Interface
PVC	Permanent Virtual Connection
PVCC	Permanent Virtual Channel Connection
PVPC	Permanent Virtual Path Connection
SVC	Switched Virtual Channel
UNI	User-Network Interface
VCI	Virtual Channel Identifier
VPCI	Virtual Path Connection Identifier

5 B-ISDN user part messages and parameters

The modifications to parameters and messages described in this clause are required to support soft PVCs.

5.1 Formats

5.1.1 Soft PVC called endpoint parameter

The format of the Soft PVC called endpoint parameter field is shown in Figures 2a and 2b.

The parameter name code allocated to the Soft PVC called endpoint parameter is described in ITU-T Q.2763.

8	7	6	5	4	3	2	1
ext. 1	Coding standard		Reserved				
Selection type							
Subfield indicator							
VPCI value							
Subfield indicator							
VCI value							

Figure 2a/Q.2767.1 – Soft PVC called endpoint parameter field for ATM user

If the DLCI indicator and value exist in the Soft PVC parameter then the VPCI/VCI indicator and value is not needed, i.e. the two subfield parameters are mutually exclusive and only one of the two subfields can exist at one time. Currently the soft PVC called endpoint is coded as follows.

8	7	6	5	4	3	2	1	
ext. 1	Coding standard		Reserved					
Selection Type								
DLCI subfield indicator								
ext. 0	Spare 0	DLCI (Most significant 6 bits)						(Note 1)
ext. 0/1	DLCI (2nd most significant 4 bits)				0	0	0	
ext. 1	DLCI (3rd most significant 6 bits)						Res. 0	(Note 2)
ext. 0	DLCI (3rd most significant 7 bits)							(Note 3)
ext. 1	DLCI (4th most significant 6 bits)						Res. 0	(Note 3)

NOTE 1 – The DLCI is two, three or four octets (i.e. 10 or 16 or 23 bits respectively). The standard default length of the DLCI is two octets. The extension bit mechanism is used to indicate non-default length of the DLCI.

NOTE 2 – This octet shall only be included when bilateral agreements between the nodes which are endpoints of the soft PVC allow a 3-octet DLCI (16 bits).

NOTE 3 – These octets shall both be included only when bilateral agreements between the nodes which are endpoints of the soft PVC allow a 4-octet DLCI (23 bits).

Figure 2b/Q.2767.1 – Soft PVC called endpoint parameter field for frame relay user